

REMARKS

The Official Action mailed June 18, 2003, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statements filed on March 16, 2000, June 14, 2000, October 19, 2000, January 31, 2001, October 31, 2001, February 28, 2002, June 13, 2002, and May 2, 2003.

Claims 1-6, 9, 10, 15, 16, 22-27, 40 and 46-74 were pending in the present application prior to the above amendment. Claims 6, 9, 10 and 15 have been canceled and claims 16, 22-27, 40, 55-58, 63-66 and 68-74 have been amended to better recite the features of the present invention. Accordingly, claims 1-5, 16, 22-27, 40 and 46-74 are now pending in the present application, of which claims 1-5, 47-50 and 56 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 1-4, 51-54, 55-58, 59-62 and 63-66 under 35 U.S.C. § 112, second paragraph asserting that there is insufficient antecedent basis for the limitation "said medium" in line 1 of claims 55-58 and 63-66. In response, the Applicants have amended claims 55-58 and 63-66. The Applicants respectfully submit that claims 55-58 and 63-66 are definite as amended.

The Official Action asserts that independent claims 1-4 recite "an embedded conductive layer provided to fill said contact hole . . . wherein the embedded conductive layer comprises a conductive material dispersed in a medium," and that it is unclear as to what the difference is between "said contact hole" and "a medium." The Official Action asserts that claims 51-54 and 59-62 recite "said medium" and it is unclear for the same reason set forth in independent claims 1-4. The Applicants respectfully disagree that the difference in meaning of these terms is unclear. As described in the

specification, a contact hole may be, for example, "an opening (contact hole) 103 formed by etching" (page 10, lines 4-5); whereas, a medium, in this context, is generally understood to mean an intervening substance through which something else is transmitted or carried on. In other words, the embedded conductive layer comprises a conductive material dispersed in any suitable material which is adapted to contain the conductive material. For example, the medium may be an organic film or an inorganic film, as described in the specification at page 7, lines 2-4, and recited in claims 51-54 and 59-62. Further, the embedded conductive layer itself may be provided to fill the contact hole. The Applicants respectfully submit that claims 1-4, 51-54 and 59-62 are definite without amendment.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112 are in order and respectfully requested.

Paragraph 4 of the Official Action rejects claims 1, 47, 51, 55, 59, 63, 67, 68, 71 and 72 as obvious based on the combination of U.S. Patent No. 5,536,950 to Liu et al. and U.S. Patent No. 5,706,064 to Fukunaga et al. Paragraph 5 of the Official Action rejects claims 2, 22-27, 40, 48, 52, 56, 60 and 64 as obvious based on the combination of Liu, U.S. Patent No. 5,990,542 to Yamazaki, and Fukunaga. Paragraph 9 of the Official Action rejects claims 5, 16, 22-27, 40 and 46 as obvious based on the combination of Liu and Fukunaga. Paragraph 12 of the Official Action rejects claims 1, 2, 5, 22-27, 40, 47, 48, 51, 52, 55, 56, 59, 60, 63, 64, 67, 68, 71 and 72 as obvious based on the combination of Fukunaga and Liu. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the

prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Liu, Fukunaga and Yamazaki, either alone or in combination, do not teach or suggest a reflective pixel electrode.

Independent claims 1, 2, 5, 47, 48 and 56 recite a reflective pixel electrode while Liu and Fukunaga teach only a transparent pixel electrode. In the case of a display device using a transparent pixel electrode, the portions where transistors and metal wirings exit block light and the contact portion thereof generally does not function as a display. However, in a case of a display using a reflective pixel electrode, as in the present invention, the entire area of the pixel electrode functions as a display. Therefore, it is more important to improve the flatness of a pixel electrode over a contact hole in a display using a reflective pixel electrode than in a display using a transparent pixel electrode. The effect of the present invention is more important in a display using a reflective pixel electrode than in a display using a transparent pixel electrode. Nothing in Liu, Fukunaga and Yamazaki teaches or suggests changing the transparent pixel electrode of either Liu or Fukunaga into a reflective pixel electrode.

Since Liu, Fukunaga and Yamazaki do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly,

reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 6 of the Official Action rejects claims 3, 22-27, 40, 49, 53, 57, 61, 65, 69, 70, 73 and 74 as obvious based on the combination of U.S. Patent No. 6,081,305 to Sato et al., U.S. Patent No. 6,097,453 to Okita, and Fukunaga. Paragraph 7 of the Official Action rejects claims 4 and 50 as obvious based on the combination of Sato, Okita, and Yamazaki. Paragraph 8 of the Official Action rejects claims 54, 58, 62 and 66 as obvious based on the combination of Sato, Okita, Yamazaki and Fukunaga.

There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Sato and Okita or to combine reference teachings to achieve the claimed invention. Independent claims 3, 4, 49 and 50 recite "a contact hole opened through said third and second interlayer insulating films to reach said drain electrode." The Official Action concedes that Sato does not teach "that the contact holes 171 and 151 are formed as a single contact hole opened through the third and second insulating films" (p. 6, Paper No. 35). The Official Action relies on Okita to allegedly teach a single contact hole 508 opened through the third insulating film 109 and second insulating film 601 to reach the drain electrode 108" (*Id.*). The Official Action asserts that "it would have been obvious to modify the contact holes 171 and 151 of Sato et al by forming a single contact hole, because as is well known, the forming of a single contact hole as taught by Okita would reduce the number of steps in the fabricating process" (*Id.*). The Applicants respectfully disagree.

Sato appears to disclose that a plurality of metal layers are hierarchically constructed through insulating layers (col. 5, lines 42-63). At best Okita appears to teach that a plasma-nitrided film 109 and a PSG film 601 are both penetrated by a pixel electrode 508 (FIG. 6, col. 8, lines 6-12) which appears to pass through hole 507. Nothing in Okita, Yamazaki or Fukunaga would teach or suggest changing the contact

holes 171 and 151 of Sato into the single hole 507 of Okita and forming such hole through the hierarchically constructed plurality of metal layers in Sato.

Even assuming motivation could be found, the Official Action has not given any indication that one with ordinary skill in the art at the time of the invention would have had a reasonable expectation of success when combining Sato, Okita, Yamazaki and Fukunaga.

The Applicants further contend that even assuming, *arguendo*, that the combination of Sato, Okita, Yamazaki and Fukunaga is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

In the present application, it is respectfully submitted that the prior art of record, alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 10 of the Official Action rejects claims 6 and 15 as obvious based on the combination of Yamazaki and U.S. Patent No. 5,948,705 to Jun. Paragraph 11 of the Official Action rejects claims 9 and 10 as obvious based on the combination of Yamazaki, Jun and Fukunaga. In response, claims 6, 9, 10 and 15 have been canceled. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,


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